The Division of Water's In-House Regionalization Efforts

Regionalization concerns have been well-received in the numerous branches of the Division of Water. Through in-house meetings and pre-existing communication channels, staff in the KPDES, Facilities Construction, Enforcement, and Program Planning & Administration branches have pooled important information and made use of their various authorities to identify and pursue regionalization opportunities.

KPDES Branch

The DOW's KPDES Branch has actively supported the integration of regionalization concerns into all wastewater-related activities in the DOW, participating in numerous in-house meetings and developing a regionalization strategy for the entire division (a copy of this strategy is incorporated into this report as Appendix B). Staff from the KPDES Branch have also played a significant role in developing a legislative and regulatory agenda to pursue regionalization. Their research, reports, and recommendations provide much of the substance and structure for this report.

In its day-to-day business of issuing and monitoring compliance with KPDES discharge permits, the KPDES Branch routinely considers possibilities for regionalization. The requirement that a plant connect to a larger facility when one becomes available is a standard condition of KPDES permits for package plants. Also, in areas where regionalization is imminent but not yet feasible, the branch has issued package plant permits for shorter terms than the standard 5-year time span. When these permits fall due for renewal consideration on their accelerated schedule, the KPDES branch can then determine whether connection of the package plant's customers to a larger facility has become feasible. This practice has been employed in the Ashland area, Northern Kentucky, and Jefferson County, which with the coordinated efforts of state and local parties are making great strides toward achieving the regionalization objective.

The KPDES Branch has also expanded its efforts beyond its routine tasks. Staff from the branch have developed a public education presentation outlining the concept of and need for wastewater regionalization efforts. The presentation has been enhanced by the use of maps identifying wastewater facilities (municipal and small sewage) in 38 counties, generated by the U.S. Geological Survey (USGS) with the aid of DOW data and in cooperation with the Purchase ADD. Staff have traveled with this presentation to meet with and educate mayors, county judges/executive, area development districts, school boards, health departments, and chambers of commerce across the state. Meetings were held in 1992 in Pulaski, McCreary, Knott, Letcher, and Perry counties. To date in 1993, the staff have also introduced the concept in Barren, Daviess, Edmonson, Franklin, Grant, Laurel, McCracken, Madison, Marshall, Shelby, and Whitley counties and have made similar presentations to the Kentucky-Tennessee Water Environment Association and the Kentucky Consulting Engineers Council.

Facilities Construction Branch

Under the State Revolving Fund (SRF) program, wastewater facilities receiving federal money must meet certain planning and technical requirements (some of which were outlined in the previous chapter). Since receiving the federal SRF grant program in 1980, staff in the DOW's Facilities Construction Branch responsible for the SRF program have routinely incorporated regionalization

considerations into their review of wastewater facility plans and facilities construction permit application reviews.

In assessing the feasibility of regionalization for one or more projects under review, the Facilities Construction Branch considers three essential criteria:

1. Is the project ***cost-effective***? Will the proposed treatment method produce a satisfactory effluent quality and can the construction and maintenance costs of the proposed facility be supported by the projected customer base without the need for excessively high rates? If this criterion cannot immediately be met, could more customers be added to share the cost burden without disproportionately increasing the cost of the project itself? Could a less costly treatment method be substituted for the one originally planned?

2. Is the project ***environmentally sound***? Will the proposed facility cause more environmental damage through its construction and operation than it will mitigate or prevent by its treatment activity? Key considerations might include impacts on endangered species, wetlands, receiving stream quality, and sludge-disposal needs.

3. Is the project ***implementable***? Will new organizations or agreements, e.g., sanitation districts or intermunicipal agreements, be necessary in order to bring the proposed project to completion? Is local opposition a problem, and can it be resolved? Is the project eligible for funding assistance if necessary? Can the needed land acquisitions be made and easements be obtained without undue difficulty?

In employing the above criteria, the Facilities Construction Branch attempts to ensure that regionalization does not become an end in itself, but rather that it is only pursued where it can produce justifiable benefits in excess of the economic, environmental and political costs it may incur.

The Facilities Construction Branch also administers a second "tier" of review for non-SRF projects. Under 401 KAR 5:005 and 5:200, non-SRF projects must comply with the requirements of the *Recommended Standards for Wastewater Facilities* (1990 edition) of the Great Lakes-Upper Mississippi River Board of State Public Health and Environmental Managers. This document, incorporated into the regulations by reference and better known as the "Ten States Standards," is very similar to the requirements for SRF project reviews, but the former is less formal and does not require as much detail in the information given. The Facilities Construction Branch routes its written assessments of non-SRF projects to the State Clearinghouse, just it does for SRF projects, for coordinated review by all state agencies. This procedure ensures that non-SRF projects undergo as comprehensive a review as SRF projects.

The DOW has also developed a small communities outreach program (KY-SCOP, described more fully in Chapter 4) to provide information and technical assistance to small communities with wastewater problems. This program is managed by the Facilities Construction Branch. Assistance activities primarily involve advising small communities of funding sources available to them through a variety of entities. (Many of these funding programs are described in Chapter 4.) This information is provided through seminars conducted around the state and through numerous meetings one-on-one with community representatives in Frankfort or in the community itself.

The Facilities Construction Branch has met with some obstacles in its attempts to regionalize wastewater facilities. In some cases (e.g., a proposed facility for the city of Burnside in the Lake

Cumberland Area Development District, a project discussed further in the following chapter), efforts to procure funding for facility construction have stalled. More often, however, regionalization initiatives have met with political opposition from the local level. Johnson County rejected many attempts at regionalization in the Thelma area in favor of building two wastewater treatment plants practically side by side. In another instance, the city of Winchester imposed a prohibitively high tap-on fee upon the owners of a 200-lot mobile home park, effectively foreclosing the option for them to connect to Winchester's municipal wastewater system.

However, the Facilities Construction Branch has also achieved some significant successes in its regionalization efforts. The city of Ashland in Boyd County was persuaded to accept all the wastewater from the county at its municipal facility; two separately funded sewer line extension projects will soon enable the elimination of a total of 49 package plants in the county.[1] The small city of Melbourne in Northern Kentucky, which had requested SRF funding to build its own sewage treatment plant, will now be served, along with residents of 29 other cities in Northern Kentucky, by an existing treatment plant in the Campbell/Kenton Sanitation District. The communities of Cave City, Horse Cave, and Park City were encouraged to form the Caveland Sanitation District and incorporate Mammoth Cave National Park into the district to be served by their large-scale regionalization project. And a project to connect Pleasureville and Eminence to a single treatment facility is in the process of becoming a reality through the successful use of an intermunicipal agreement.

In March 1989, the DOW director and the Facilities Construction branch manager requested information from the Association of State and Interstate Water Pollution Control Administrators (ASIWPCA) on how other states have addressed the proliferation of package plants in their permitting systems. Responses were received from Alabama, Florida, Georgia, Illinois, Mississippi, New Jersey, New York, North Carolina, and Tennessee, as well as the New England Interstate Water Pollution Control Commission and the Western States Water Council. The DOW used this information as a starting point to consider elements of a regionalization effort in Kentucky based on the strengths and weaknesses identified in the regionalization activities of other states. A summary of the responses to this request is included in this report as Appendix D.

Enforcement Branch

The Enforcement Branch has used its authority in some cases to compel a regionalization solution where a package plant owner has demonstrated an inability or unwillingness to comply with KPDES permit conditions. For instance, the branch pursued enforcement action on behalf of the DOW to eliminate an existing package plant and connect its former customers to the City of Shelbyville's municipal wastewater treatment plant. Enforcement actions in Boyd County in 1990-1991 resulted in the connection of two new customers to the city of Ashland and one customer to a nearby private system.[2] The Enforcement Branch secured a court's intervention to force two sewage treatment plants operating with expired KPDES permits to connect to Lexington's wastewater treatment plant as they specified in their original permits;[3] numerous other enforcement actions have compelled similar connections around the state. Geographically targeted enforcement initiatives have been and will continue to be used to aid regionalizaiton efforts in selected areas of the state, particularly in those areas where package plant proliferation is severely degrading water quality.

The Enforcement Branch also effectively increased its legal clout in one recent case by coordinating an enforcement action with the Public Service Commission (PSC). Both agencies pursued actions against the owner of several package plants: the DOW for numerous and chronic permit violations,

and the PSC for violations of its requirements regarding rates and administration. In 1991, the effort resulted in a ruling by Franklin Circuit Court to consolidate some of the operator's systems into a larger municipal treatment system and to turn his remaining plants over to be operated by a nonprofit public utility corporation. Two of the latter package plants were recently connected to the Reidland Sanitation District system. This victory of the rule of law simultaneously benefited both rate payers and the Commonwealth's water quality.[4]

Field Operations Branch

The DOW does not rely solely on its Frankfort office staff in promoting regionalization throughout the Commonwealth. The Field Operations Branch, with staff in ten field offices, is best situated to assess at ground level the physical and political feasibility of regionalization in a given circumstance. The inspectors in each field office know first-hand the capacities and performance records of the package plants and Publicly Owned Treatment Works (POTWs) in their region, and their experience helps them to assess the advisability of a proposed regionalization effort or recommend an effort where one has not yet been considered. In addition, field staff live in the regions they serve and may thus be better situated to anticipate and deal with the political issues associated with facility consolidation and siting issues. Field staff work closely with the central office to promote regionalization efforts in their regions by assisting enforcement actions against facilities in violation, providing technical assistance to operators, participating in public meetings, assisting in project assessments, and generally representing the entire DOW in wastewater-related activities in their regions.

Program Planning and Administration Branch

Information exchange has also sensitized the Program Planning and Administration Branch staff responsible for reviewing applications for projects requesting federal assistance. The review of these projects is coordinated by a State Clearinghouse to ensure that all agencies whose programs have a potential bearing on a proposed project have an opportunity to comment on it, recommend modifications, and either endorse or "nonendorse" the project. The wastewater regionalization concept now receives routine consideration in reviews of all proposed wastewater facility projects requesting federal aid (e.g., Community Development Block Grants, Farmers Home Administration funding). The Program Planning and Administration Branch has also used monies earmarked for pass-through to regional planning organizations under the Clean Water Act Section 205(j)/604(b) since FFY 1988 to fund wastewater regionalization activities (see Chapter 6).

Regionalization Strategy Document

Yet another result of the in-house cooperation on wastewater regionalization was the development of a strategy document outlining ways to further the concept. The strategy, drafted in 1990 by staff from the KPDES Branch, establishes the need for regionalization and proceeds to identify numerous data-gathering needs and a plan to review and act on that data. The completion of this comprehensive regionalization report is an outgrowth of that strategy, providing a basis for recommendations developed through activities outlined in the strategy.

A copy of the strategy document is incorporated into this report as Appendix B.

Conclusion

Through the activities described above, the DOW has established its commitment to regionalizing wastewater treatment systems where possible. The efforts of branches in the division have met with varying degrees of success, given the powers and limitations in the current regulatory framework.

However, the DOW is not the only entity involved pursuing regionalization in Kentucky. In implementing the wastewater regionalization objective, the DOW has made use of a grant program administered by the USEPA under the Clean Water Act's Section 205(j)/604(b), which provides resources through states to local and regional agencies for water quality management planning. The following chapter describes the diverse activities pursued throughout Kentucky with the aid of Section 205(j)/604(b) funding.

CHAPTER NOTES

[1] State government press release, "Kentucky Progressing Toward Goal of Regionalizing Wastewater Treatment," March 13, 1992.

[2] Memorandum from John E. Hornback, Enforcement Branch Manager, to Jeffrey Jenkins, Program Planning & Administration Branch, dated August 20, 1991.

[3] State Government news release, "Kentucky Division of Water Enforces Rules for Water Quality," February 8, 1991.

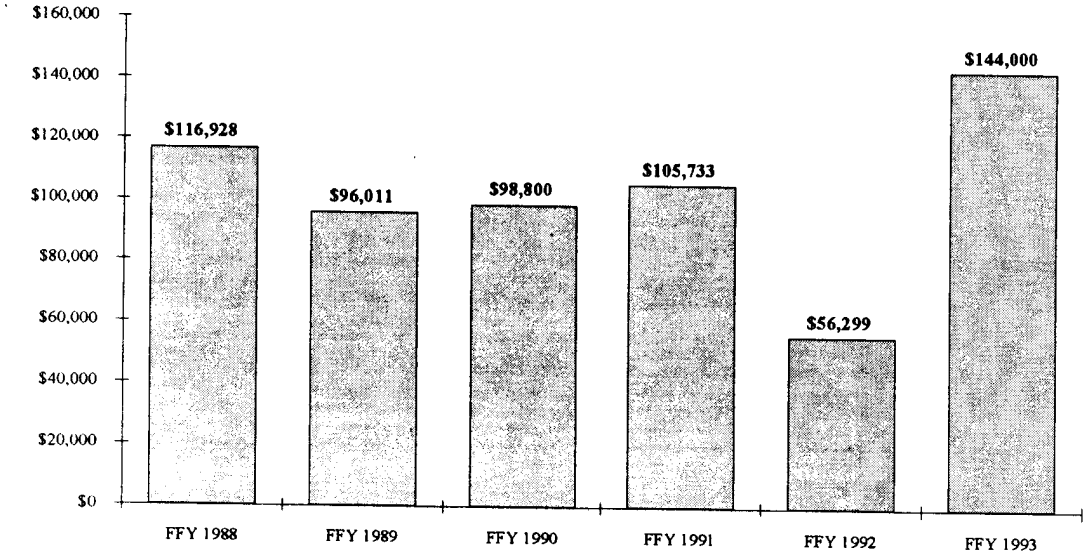
[4] Letter from Jack Wilson to George Edward Overby, Jr., Chair of Kentucky Public Service Commission, Aug. 28, 1992.

The Section 205(j)/604(b) Program

Legislative Origins

The Clean Water Act (CWA) originally authorized federal funding of state construction grant programs for public wastewater facilities, and Section 205(j) of that statute mandated that each recipient state dedicate 1 percent of those federal construction monies to water quality management planning activities. In the most recent amendments to the CWA in 1987, contained in the Water Quality Act of 1987, the U.S. Congress phased out the construction grants program and replaced it with a state revolving fund (SRF) program. This new program provides 80 percent federal matching funds to states to support a revolving loan fund for wastewater treatment projects.[1] The same 1 percent set-aside requirement that applied to construction grants funds now applies to SRF monies, as stipulated in Title VI Section 604(b). Figure 6-1 shows the amount of Section 205(j)/604(b) funding dedicated to water quality management planning activities in Kentucky since FFY 1988.

Figure 6-1
Federal Section 205(j)/604(b) Funds Set Aside
FFY 1988-1993



Source: Division of Water, 1993

During the 1987 reauthorization, Congress also added a new condition to receiving these federal funds: Each state must pass 40 percent of its federal SRF matching funds through to regional public comprehensive planning organizations and interstate organizations for implementation of water quality management planning activities.[2]

The DOW has used its 40 percent pass-through money to further the wastewater regionalization concept.[3] The DOW has contracted with Kentucky's Area Development Districts, a regional health department, and the Council of State Governments to implement strategies to reduce the number of package

treatment plants in the state and to assist in improving the performance of those package plants for which connection to larger municipal systems is not feasible.

Table 6-1 shows the agencies that have participated in the Section 205(j)/604(b) program and the amount of funding they have received each year. (Blank spaces indicate that the agency did not contract with the DOW for funds in that federal fiscal year.)

Table 6-1
Section 205(j)/604(b) Water Quality Management Planning Funds
FFY 1988-1993

	FFY 1988	FFY 1989	FFY 1990	FFY 1991	FFY 1992	FFY 1993	TOTAL
Bluegrass ADD	$44,000	$32,000		$32,000			$108,000
Purchase ADD		$32,011	$69,400*	$17,177	$24,823	$50,000	$193,411
Big Sandy ADD		$32,000	$29,400	$7,684	$26,916		$96,000
Council of State Governments	$5,428			$17,872			$23,300
Gateway District Health Dept.	$31,000			$31,000	$4,560	$31,000	$97,560
Lake Cumberland ADD	$36,500						$36,500
Green River ADD						$30,000	$30,000
Kentucky River ADD						$33,000	$33,000
TOTAL	$116,928	$96,011	$98,800	$105,733	$56,299	$144,000	$617,771

* Includes $27,000 that was contracted to make digital maps of package plant locations in 38 Kentucky counties, using Geographic Information Systems (GIS) technology.

Note: No agency actually received Section 205(j)/604(b) funding in FFY 1988 or 1989; these monies were disbursed under Memoranda of Agreement in FFY 1990.

Area Development Districts (ADDs)

Kentucky's 15 Area Development Districts (ADDs) are regional planning agencies established by statute in KRS 147A.050. They are empowered to engage in the work of program development through administrative, research and planning efforts in their constituent counties to encourage the development of public and private property in the most appropriate relationships.[4] Each ADD is governed by a board of directors, whose powers encompass the development of a district-wide development plan including, among other elements, water and wastewater considerations.[5] The ADDs are authorized to "[a]ccept, receive, and administer loans, grants, or other funds...from public and private agencies including the Commonwealth and the federal government for the purpose of carrying out the functions of the district."[6]

Among their many duties, the ADDs may advise municipalities and special districts seeking technical and financial support for wastewater treatment projects, e.g., selecting engineering services or applying for federal grant/loan funding. Most ADDs also provide management assistance (e.g., budgeting, personnel policies, etc.) to wastewater utilities. Some ADDs, either directly or indirectly, even provide wastewater facilities with assistance in day-to-day utility operation and maintenance.

Disbursement of Section 205(j)/604(b) Pass-Through Funding

Although the ADDs provided the most obvious target for pass-through monies, the DOW has not restricted Section 205(j)/604(b) funding solely to those agencies. Recipients have included a district health department as well as the Council of State Governments, which is headquartered in Lexington. In addition,

the DOW encourages new agencies to join the program, soliciting proposals from entities in geographic areas targeted as a result of water quality data analyses.

To provide for the disbursement of the pass-through funds, the DOW enters into a Memorandum of Agreement (MOA) with each agency. The latter then submits monthly invoices and status reports to the DOW on progress in the agreed activities. The DOW also convenes a meeting of all Section 205(j)/604(b) funding recipients at least semi-annually, in accordance with U.S.EPA contractor oversight guidelines, as a forum for sharing information on the various activities underway.

Following are summaries of all projects that have received and/or continue to receive Section 205(j)/604(b) pass-through funding from the Kentucky DOW.

Bluegrass Area Development District (BGADD)

The BGADD is composed of the 17 central Kentucky counties of Anderson, Bourbon, Boyle, Clark, Estill, Fayette, Franklin, Garrard, Harrison, Jessamine, Lincoln, Madison, Mercer, Nicholas, Powell, Scott, and Woodford. The district contains 31 public wastewater systems, 8 of which are classified as small, and more than 85 package plants owned by either commercial or industrial users. The ADD participated in the Section 205(j)/604(b) program from FFY 1990-92 and continues to support regionalization through its role in comprehensive planning assistance.

Many of the district's 85 permitted package plants were installed many years ago. In the interim, municipal sanitary sewers were extended to areas near these facilities. The BGADD surveyed the owners and operators of package facilities to make them aware of the opportunities for connection to a municipal sewer system. Using DOW records, BGADD also created a map of all wastewater discharge permit holders in the district and verified the continued existence and operation of many of these facilities. BGADD staff used these data in several counties to identify problem wastewater treatment facilities that were in noncompliance or in or near bankruptcy. These facilities were targeted for technical assistance and regionalization efforts.

BGADD has also educated fiscal courts and health departments about the problems associated with haphazard land-development policies and the proliferation of small wastewater treatment plants. Building upon these efforts, the BGADD has promoted regionalization language in comprehensive plans and subdivision regulations or updates, an initiative that has already succeeded in Scott and Bourbon counties.

In cooperation with the Rural Water Association, DOW, and the Farmers Home Administration, the BGADD prepared a *Kentucky Rural Wastewater Assistance Manual for Policymakers*. The wastewater manual provides local officials with an understanding of the planning, design, funding, and operation of wastewater treatment facilities. The document also familiarizes these decision-makers with the DOW's efforts to regionalize wastewater facilities.

Through its activities under the Section 205(j)/604(b) program, the BGADD has helped to eliminate 9 package plants and extend first-time sewer service to 1,400 (or 0.3 percent of) residents in the district.

Gateway District Health Department (GDHD)

The GDHD has contracted with the DOW for wastewater regionalization activities under the Section 205(j)/604(b) program since 1990. The GDHD deals with public health issues in the eastern Kentucky counties of Bath, Menifee, Montgomery, Morgan, and Rowan. The Gateway Regional Environment-Education Network (GRE-EN) has been established by GDHD to educate the public about environmental and health issues.

The Gateway district contains seven public wastewater systems, three of which are classified as small, and approximately 23 package plants. The GDHD has used its funding to raise public awareness of wastewater treatment issues, train package plant operators, and publicize regionalization as a solution to many wastewater disposal problems in the Gateway region. Most notably, the GDHD completed an innovative and very successful water/wastewater education project for 196 students at Ezel Elementary School in the fall of 1992. The wastewater portion of the curriculum employed the school's wastewater treatment plant as an outdoor classroom and personnel from several agencies (including DOW) as instructors. The GDHD is now bringing the Ezel program to other schools in the Gateway Region; the Menifee and Rowan County schools have already expressed an interest.

The GDHD has also conducted rural wastewater disposal system surveys throughout the region in an effort to identify areas within the five counties where current small-scale methods of sewage disposal are not working effectively, assist land users in taking appropriate corrective action, and assess people's level of understanding about wastewater systems in order to develop effective educational programs. Responses to these surveys have spurred the construction of wetlands for wastewater treatment in three counties and municipal extension projects in two others.

GDHD officials have been instrumental in securing public support in the communities of Salt Lick, Midland, and Farmers for a unique joint sewer connection project crossing the boundary between two counties; they credit much of their success to public awareness/education efforts conducted in the area. Salt Lick residents established their own nonprofit corporation in order to obtain funding for a sewer collection system that will serve residents in the three small communities.

Staff members are also working with citizens, county officials, and water board personnel in Morgan County in an effort to provide water and sewer lines to approximately 60 households along Liberty Road. Residents are plagued by leaking septic systems that regularly flood the area with raw sewage and contaminate the water supply. The state Cabinet for Human Resources has ordered the GDHD not to approve any more septic systems in the area, because the impermeability of the soil underlying the area and a naturally high water table render such systems ineffective.

In November 1992, GDHD staff helped sign up residents in currently unsewered areas of Rowan County for sewer service. Construction of a new line to serve these areas has begun, and completion is expected by late fall 1994. Approximately 500 households will be added to the Morehead municipal system, and an additional 480 households will be added from both Bath and Rowan counties, with completion of the Salt Lick project by mid-1995. An application is being prepared for another major wastewater project in the Clearfield area of Rowan County.

Since entering the Section 205(j)/604(b) program, the GDHD estimates that regionalization efforts have already eliminated three package plants; another five will be eliminated upon completion of the current projects described above. With the GDHD's assistance, first-time sewer service will have been extended to nearly 5 percent of the total households in the Gateway region by 1995.

Regionalization activities in the Gateway region will continue with additional funding in FFY 1994.

Council of State Governments (CSG)

In FFY 1991, the DOW contracted with the CSG's Center for Environment to perform a survey of other states' efforts to promote regionalization. The Center for Environment exists to aid states in communicating about environmental problems and solutions, primarily by conducting research projects on environmental subjects.

The CSG conducted a literature search and 50-state survey to identify states in which septic systems and/or package treatment plants contribute to water quality degradation, actions taken to control problems with these systems, strategies to encourage the replacement of package plants with POTWs, impediments encountered in regionalization efforts, and how states have dealt with those impediments.[7] CSG mailed the survey in January 1991 to divisions of water and departments of health in all 50 states.[8] Follow-up letters and phone calls elicited responses from 59 agencies in 46 states (the four non-respondent states were Hawaii, New Jersey, Oregon, and South Carolina).

The Council's survey found that many states are not meeting water quality standards due to the proliferation of malfunctioning on-site septic systems and small package treatment plants. Roughly half of the agencies that responded to the survey considered on-site septic and package plants to be a moderate to severe problem, and about half had some strategy to regionalize these systems.[9] Many states indicated that they are attempting to limit the proliferation of package plants through siting restrictions, more stringent permit criteria, licensure of installers, maintenance requirements, bonding, and stringent enforcement measures.[10] For example, Michigan requires connection to a public sanitary sewer within 18 months of availability of the sewer, and the Ohio Revised Code authorizes county commissioner boards to order connection to a public sewer.[11] Rhode Island authorizes city or town councils to inspect and order maintenance of septic systems, provide education on care of the systems and levy fines for noncompliance.[12] The Nevada Water Pollution Control Law establishes permit conditions and provides for assumption of control of a plant by the local governing body,[13] and North Carolina does not even permit individual package plants that have surface discharges.[14]

The CSG study further found that local opposition presents the most serious impediment to regionalization. States indicated that public education and the cooperation of local authorities are mandatory for a successful regionalization program. Although regionalization can provide economies of scale in terms of physical systems and staff expertise, the size and scope of the regional strategy must take political and environmental boundaries into consideration.[15]

The DOW used the CSG study as a resource in developing legislative proposals for 1994 and in drafting the measures recommended in the final chapter of this report.

Lake Cumberland Area Development District (LCADD)

LCADD serves the 10 South-central Kentucky counties of Adair, Casey, Clinton, Cumberland, Green, McCreary, Pulaski, Russell, Taylor, and Wayne. The ADD received FFY 1988 Section 205(j)/604(b) funding in 1990-91 to instigate and supervise an environmental and economic feasibility analysis of wastewater treatment options to serve the city of Burnside.

Burnside, a small city located directly adjacent to Lake Cumberland, is divided into three separate sections by Lake Cumberland. While the Burnside area is unsewered, the nearby city of Somerset currently has two interconnected treatment facilities: a 1.5 million gallons per day (mgd) facility discharges into a 3 mgd plant with surplus treatment capacity. Both cities agreed to explore a regional facility or, if found more cost-effective, separate facilities to achieve a sound solution.

Using Section 205(j)/604(b) funds, LCADD retained a consulting firm to recommend the best wastewater treatment alternative for the city of Burnside. The firm's value engineering study found that environmental and economic considerations favored treating Burnside's wastewater in Burnside rather than conveying it to Somerset for treatment.[16] Instead, the study analyzed the following three low-technology alternative systems that Burnside could feasibly employ:

1. Collect sewage from Burnside, provide secondary treatment in a new lagoon treatment facility near the Kingsford Charcoal Plant, and pipe effluent to General Burnside Island State Park to irrigate the General Burnside Golf Course. (An area next to the treatment facility could also be used as a backup land treatment site.)

2. Treat Burnside sewage in the existing wastewater treatment plant at nearby Woodson Bend and apply the effluent to the golf course as Woodson Bend now does with its own waste.

3. Treat Burnside waste in a two-lagoon treatment plant in the vicinity of the Cooper Power Plant and discharge the effluent into Pitman Creek.[17]

Based on the above study, the proposal recommended as the most cost-effective, environmentally sound, flexible, and implementable was Option 1. Accordingly, Burnside has prepared a Section 201 Facilities Plan[18] to implement this proposal and has included a schedule for extending wastewater service in several phases to the surrounding area. This plan has not yet received funding assistance. However, through the Section 205(j)/604(b)-funded value engineering component of the 201 plan process, most of the technical groundwork has been laid for the project. Burnside thus should be able to proceed quickly when it does receive funding for facility construction.

Purchase Area Development District (PADD)

The PADD comprises the westernmost Kentucky counties of Ballard, Calloway, Carlisle, Fulton, Graves, Hickman, McCracken, and Marshall. The district contains 36 public wastewater systems and approximately 69 package plants. The PADD has participated in the Section 205(j)/604(b) program since FFY 1990.

In 1989, the PADD created a not-for-profit entity called the Purchase Public Service Corporation (PPSC) to provide wastewater technical assistance to facilities in the ADD on an as-needed basis. The PPSC also contracts to provide routine operation and maintenance services where desired and can also assume ownership of plants. The most notable acquisitions resulted from a legal action in which the Public Service Commission (PSC) and the DOW cooperated in persuading a court to force the owner of several package plants with a history of negligent operation to deed its facilities to the PPSC. The PPSC performs necessary repairs or modifications to such forfeited systems and seeks to incorporate them into more comprehensive systems where possible. Other activities include assisting municipalities to upgrade their

plants and collection systems, conducting a survey of wastewater rates, and working to extend sewer service to unsewered areas accessible to capable wastewater treatment systems.

The PADD has also expanded its focus to propose the establishment of a fund for small water and wastewater projects. PADD staff have long expressed concern about the difficulties small communities face when trying to secure funding for comparatively small projects, such as a simple line extension. Such projects are typically too small to compete for traditional sources of wastewater funding, yet they often would provide very cost-effective solutions to chronic local problems. The PADD has communicated with the DOW and several other parties to determine the level of support for a program to meet these needs. They are also evaluating other existing programs, such as the Kentucky Infrastructure Authority (KIA), as possible vehicles for implementing the proposal.

Since entering the Section 205(j)/604(b) program, the PADD estimates that regionalization efforts have eliminated 7 package plants and forestalled the emplacement of at least 1. The PPSC has assumed direct ownership of 6 package plants, of which 2 have been eliminated. The PPSC also provides routine operational assistance to at least 6 package plants and ad hoc consultant service to approximately 15 to 20 such facilities.

Regionalization activities in the PADD will continue in FFY 1994.

Big Sandy Area Development District (BSADD)

The BSADD promotes economic development in the five Eastern Kentucky counties of Floyd, Johnson, Magoffin, Martin, and Pike. The district contains 10 public wastewater systems, 7 of which are classified as small, and more than 400 package plants. With such a high number of the latter, ADD staff are vitally interested in regionalization to curb the installation of new plants and eliminate existing systems where possible. The BSADD has participated in the Section 205(j)/604(b) program since FFY 1990.

The ADD offers technical and financial expertise to wastewater treatment plants that are having problems meeting state discharge requirements. The ADD also works to raise public awareness of wastewater treatment problems in the region. With the aid of concerned citizens, the BSADD continues to discover unpermitted, previously unknown package plants and report them to the DOW.

The ADD also works to eliminate poorly operated package plants and find alternatives for inadequate systems. One notable ongoing project involves negotiations to eliminate three failing package plants -- two serving separate subdivisions and one serving an apartment complex -- and replace them with one permitted facility. Another project involves a subdivision with a failed 6,000-gallon-per-day plant inadequately serving approximately 30 households. No room is available for expansion, and the BSADD has worked with the owner/operator to rehabilitate and obtain a permit for the plant and put it back in operation.

The BSADD did not apply for funding in FFY 1993, but staff continued to participate in the effort and share information with other participants. The ADD will receive funding again during FFY 1994 .

Since entering the Section 205(j)/604(b) program, the ADD estimates that regionalization efforts have eliminated or confirmed as defunct approximately 29 package plants, identified another 15 unpermitted package plants for incorporation into the KPDES program, assisted the communities of

Salyersville, Martin, and Prestonsburg with line extensions serving more than 70 residences and businesses, and resolved problems involving more than 20 failing package plants.

Green River Area Development District (GRADD)

The GRADD is located in the northwestern part of the state, encompassing the counties of Daviess, Hancock, Henderson, McLean, Ohio, Union, and Webster. There are 26 incorporated cities in the district, 24 with a population of fewer than 5,000. The district has 21 public wastewater systems, most of which are classified as small, and more than 200 private systems and package plants. Most of these small systems are ill-equipped to deal with the complexities of operating and maintaining their wastewater systems, and current and proposed federal and state regulations requiring more stringent testing and operating procedures will compound these difficulties.

The GRADD entered the Section 205(j)/604(b) program in FFY 1993. Funding received is being used to establish a Small Wastewater Systems Technical Assistance Program (SWSTAP), which will primarily provide technical and financial planning assistance to small wastewater systems throughout the GRADD area.

The GRADD is helping the city of Beaver Dam obtain financing for the extension of a sewer line roughly three miles out to a fringe area of the county. This extension would provide wastewater service to several subdivisions, four businesses, and a nursing home and would eliminate numerous failing septic systems. GRADD has helped secure $500,000 of the necessary $800,000 from private sources, the state Transportation Cabinet (which owns some of the property to be served), and the city of Beaver Dam. The ADD is also working on a similar effort to persuade the city of Calhoun to extend a mile-long sewer line to an unincorporated community. This project would eliminate 40 septic systems, all of which are failing. The city has been unwilling to finance the $100,000 project without annexing the area, whose residents steadfastly oppose annexation. GRADD is working to persuade the city to obtain a loan for the sewer project and pay it off through a monthly surcharge on customers in that area.

GRADD is assisting the small community of Sebree to build a new wastewater treatment plant. Sebree's existing plant is more than 40 years old and can no longer meet effluent standards for the volume of wastewater it now receives. With GRADD's help, Sebree has retained a consultant to design a new facility, and the village is piecing together funding for the $1-1.5 million project from various sources, particularly low-interest loan programs.

The GRADD is also working to establish a regional resource center within the GRADD office to collect and disseminate current information on operator certification requirements, existing and proposed changes in monitoring parameters and regulations, and available funding mechanisms for plant and system improvements.

The GRADD will continue its regionalization activities during FFY 1994.

Kentucky River Area Development District (KRADD)

The KRADD is comprised of the eight Southeastern Kentucky counties of Breathitt, Knott, Lee, Leslie, Letcher, Owsley, Perry, and Wolfe. The district contains 12 public wastewater systems and approximately 95 package plants. As with GRADD, the KRADD is new to the Section 205(j)/604(b)

program, having entered into its first MOA with the DOW in FFY 1993 to deal with sewage problems in the North Fork of the Kentucky River. The DOW has issued swimming advisories on the North Fork for the last three years, citing excessive levels of fecal coliform detected during an aggressive monitoring and enforcement campaign. DOW's enforcement efforts last summer brought almost all municipal and package treatment plants into compliance with fecal coliform limits and improved water quality enough to justify lifting the swimming advisory on the 80 river miles between Chavies and Beattyville in June 1993. However, the high levels still present upriver indicate a pervasive sewage disposal problem in the North Fork and its tributaries.

DOW and KRADD staff have organized a multi-agency task force to deal with the issue and develop solutions/options for the area. The core working group is composed of personnel in the KRADD, DOW, Cabinet for Human Resources, Kentucky River District Health Department, and Division of Plumbing. This task force has actively solicited input from local citizens and elected officials, who speculate that much of the pollution problem stems from the widespread piping of residential sewage directly into the North Fork and its tributaries.

The task force is using the KRADD's Geographic Information System (GIS) to map the source and extent of pollution in the North Fork, based largely on the Discharge Monitoring Reports (DMRs) of area wastewater facilities, stream monitoring data from the DOW's enforcement campaign, locations of known package plants, and demographic information. In addition, DOW field personnel are surveying the area on foot to determine the extent of the straight pipe discharge problem; thus far they have counted more than 700 pipes in Letcher County alone.

Based on their findings, the task force anticipates promoting regionalization where feasible to solve specific wastewater problems. However, the task force is also evaluating the feasibility of alternative arrangements such as constructed wetlands, new septic systems, and small-diameter pressure sewers to provide solutions to many existing problems for which physical consolidation of wastewater streams is simply not workable. Task force members are also developing an educational program in the North Fork region to increase awareness of the need for proper residential sewage disposal and to generate support for the project.

Based largely on the results of the geographic analysis, the working group will select an area in which to promote specific wastewater treatment solutions, while using a combination of enforcement, technical assistance, and public education activities throughout the North Fork area. The task force has received funding under the CWA's Section 319 nonpoint pollution source grant program to help fund eligible activities such as wetlands and septic system construction in targeted areas of the North Fork drainage basin.

The KRADD will continue its regionalization activities in FFY 1994, expanding its efforts to include assistance to package plants and small municipal facilities in the district.

Conclusion

With the help of Section 205(j)/604(b) pass-through funding, several advances have been made toward improving water quality in the Commonwealth. Regionalization activities being conducted with Area Development Districts (ADDs) and other agencies in the state have improved the linkage between the local, regional, and state levels and have increased operational efficiency and led to some consolidation of package treatment plants throughout Kentucky.

In particular, funding recipients have recognized the importance of providing viable alternatives to existing and proposed package plants and septic systems or, at a minimum, improved operational performance. Accordingly, many of these agencies have worked with local governments to plan and secure financial assistance for comprehensive wastewater projects. Several such projects have already been completed, and still others are in various stages of applications or actual construction. With the implementation of these projects, many Kentuckians will be connected to reliable sewage treatment systems for the first time.

However, the regionalization efforts of these agencies, like those undertaken directly by the DOW (refer to Chapter 5), have all been met with obstacles, including local opposition to what is perceived as a loss of autonomy, an inability to obtain funding for many worthwhile projects, and inadequate means to compel package plant and home owners to take responsibility for poorly run systems. If regionalization efforts are to produce significant and lasting water quality improvements, the state and its entities must have expanded authority to compel effective and equitable measures to deal responsibly with wastewater treatment needs. Suggestions for improving existing mechanisms and addressing impediments are outlined in the final chapter of this report.

CHAPTER NOTES

[1] The Water Quality Act of 1987, Pub. L. No. 100-4, 101 Stat. 76 (1987), Title VI.

[2] Id. at Section 205(j)(3).

[3] The other 60 percent of Kentucky's Section 205(j)/604(b) funding is used within the DOW to further water quality management activities including oversight of the pass-through Memoranda of Agreement, program planning and budgeting, preparation of Regulatory Impact Analyses for pending water-related regulations, automation of the Federal Assistance Review tracking system, and several other activities related to water quality issues.

[4] KRS 147A.080 and KRS 147A.090.

[5] KRS 147A.090 Section 2.

[6] KRS 147A.080 Sections 6 and 7.

[7] The survey results are compiled in Karen Marshall, Regional Wastewater Treatment Systems: A National Survey of State Problems and Solutions, Lexington, Council of State Governments, 1991.

[8] Both categories of agencies were surveyed because, although divisions of water are usually responsible for the regulation of package plants and POTWs, many state departments of health have jurisdiction over discharges of less than 1500-2500 gpd (e.g., on-site domestic package plants).

[9] Refer to tables in Karen Marshall, Regional Wastewater Treatment Systems: A National Survey of State Problems and Solutions, Lexington, Council of State Governments, 1991, pp. 15-16 for more detailed breakdown of responses.

[10] Ibid, 37.

[11] Ibid, 34.

[12] Ibid, 35.

[13] Ibid, 35.

[14] Ibid, 35.

[15] Karen Marshall, Regional Wastewater Treatment Systems: A National Survey of State Problems and Solutions, Lexington, Council of State Governments, 1991, p. 37.

[16] Hudson and Associates, Sewer Study for Somerset, Burnside and Southern Pulaski County, May 27, 1991. For a summary of the findings, see page 24.

[17] For a detailed discussion of these alternatives, see Ibid, 7-20.

[18] For more information about these plans and their requirements, please refer to Chapter 4 of this report.

Impediments to Regionalization

For a variety of reasons, regionalization is not an easy objective to achieve. Even where technical solutions to the inefficient provision of wastewater service exist, other impediments all too often stand in the way of implementing these solutions. This chapter will discuss some of these impediments, citing several examples of frustrated regionalization efforts.

Respondents to the Council of State Governments (CSG) survey[1] discussed in Chapter 6 were asked to rank a list of 14 items on a scale from one to five based on the extent to which they operate as impediments to regionalization. Table 7-1 below summarizes the results of the survey ranking.

Table 7-1
Ranking of Impediments to Regionalization

Impediment	Scale Average
Local opposition	3.56
Cost	3.42
Political boundaries	3.27
Development pressures	3.27
Zoning	3.10
Multi-jurisdictional arguments	3.00
Competing commercial interests	2.36
Priority lists	2.05
Hydrologic features	2.00
Technical difficulties	1.96
Administrative delays	1.96
Lack of expertise	1.84
Critical habitats, easements	1.78
Diverse technical standards	1.52

Scale: 1=Not a problem, 5=Substantial problem

Source: Adapted from CSG survey report, p. 20 (see chapter notes for full cite)

In Kentucky, DOW staff cite four impediments in particular that continue to hamper regionalization efforts in the Commonwealth: *cost* (to state, communities, or users), *political boundaries*, *multi-jurisdictional arguments*, and *local opposition/non-consensus*.[2] Each of these impediments is discussed separately below.

Cost

For communities seeking to construct or expand a wastewater treatment facility or to extend existing sewer lines, funding the project may prove difficult if not impossible. Many small communities do not possess the expertise necessary to fill out a competitive application for grant or loan assistance, and local officials may not even know all of the options available to them for funding and other assistance. The Purchase Area Development District has taken up the cause of small, non-competitive projects and seeks to identify or develop a source of funding especially for them, for in many cases they offer a cost-effective

means of eliminating one or more package plants or a cluster of on-site systems. To date, however, this problem has not been resolved.

On the other hand, a facility already constructed and operating may in effect prohibit connections outside its normal service boundary by charging high connection fees. An attempt in Clark County to connect a 200-lot mobile home park to the city of Winchester failed when the city informed the applicant that the park would have to pay the $1,000 tap fee for *each* mobile home, for a total tap fee of $200,000. Many other municipalities would have assessed a single tap fee for the entire park. Other communities may require that an extra-municipal area agree to annexation before it can receive the service of the municipal wastewater system.

Applicants faced with such terms may particularly oppose them if the facility to which they wish to connect was built using grant funding, especially if their community has been unable to secure grant funding for its own system. In addition, they may object to paying significantly higher rates than existing customers to a facility that was built with the help of state and federal taxpayers' -- partly *their* -- money.

If a community helped secure the grant funding, cost disputes can become even more heated. The Caveland Sanitation Authority, an entity formed with the cooperation of the cities of Horse Cave, Cave City, and Park City, was originally established to provide regional wastewater service to the three cities and Mammoth Cave National Park, with the goal of protecting underground rivers in the park from raw sewage contamination. Halfway through the $15 million project, when new treatment plants came on line to serve Horse Cave and Cave City, many residents of those communities began to fear that the loans needed for completion of the project would cause their own sewer rates to skyrocket. A subsequent move to break up the authority stalled, however, at opposition from Park City, Mammoth Cave National Park. The DOW's Facilities Construction Branch and federal EPA, which furnished the money to complete the first half of the project, succeeded in resolving the dispute.[3]

Another cost impediment may be raised by the owner of a failing package plant. In too many cases, this individual collects service fees but does not use the money to provide adequate (or, in some cases, any) sewage treatment. The best solution for improvement where an operator makes no good-faith effort to bring the plant into compliance may be a change of ownership, either through a purchase agreement or a court order. However, some package plant owners request high prices for the facilities despite their poor operating records, and the purchase negotiation process may consume a great deal of time and effort while pollution from the plant continues unabated. For these individuals, the plant may indeed be worth the price asked, because their only "operating" expense is the cost of retaining counsel and occasionally appearing in court, leaving the remainder of the sewage fees collected as profit.[4]

Political Boundaries

In some cases, an existing comprehensive sewer system would like to provide sewer service to areas outside its established service boundary. Operating costs can be spread out over a larger customer base, thus lowering the unit cost in many instances. An added source of raw wastewater can even improve the efficiency and quality of treatment at facilities that are currently operating far below design capacity and can provide stability to systems vulnerable to widely fluctuating daily flows.

However, some of these systems face difficulties in extending the territory they serve. The Metropolitan Sewer District (MSD) that serves Louisville and Jefferson County has found it difficult to extend service to potential customers in the same watershed who should most logically be served by MSD

facilities, but who reside outside Jefferson County. MSD is currently working with Oldham County to provide its service on a contractual basis to an Oldham County subdivision through the use of an interlocal agreement. The process has been lengthy and not without its opponents. Some municipalities in Kentucky are not willing to extend their service to surrounding areas unless those areas submit to annexation--an extension of the municipal boundaries.

The *lack* of political boundaries may also present an obstacle to small unincorporated communities who could benefit from a wastewater regionalization project. Only incorporated entities are allowed to apply for construction funding, and the establishment of any type of incorporation (municipality, sanitation district, etc.) requires significant popular support, educational efforts, and leadership at the local level, resources that may be absent or occupied with other concerns.

Multi-Jurisdictional Arguments

Regionalization discussions often require the involvement of multiple jurisdictions or other identifiable groups: neighboring cities, cities and their county or counties, or urban and rural residents. Quite commonly these entities have clashed before on other issues of local importance, and sometimes old hostilities linger long after the original quarrel has been forgotten. In such a strained atmosphere, the task of creating a regional wastewater solution for all of these parties may be virtually impossible, lacking an external stimulus to make it happen. One key party may even refuse to participate; if so, its absence may cripple the voluntary initiative.

At the root of most jurisdictional arguments lies a lack of trust between neighboring communities. Each may identify responsibility for its own sewage with autonomy, and may fear that a regional entity, especially one relying on facilities located in another jurisdiction, will subject them to "rate tyranny" or wield its wastewater authority as leverage in other issues.

Local Opposition/Non-Consensus

At the most basic level, a group of local residents confronted with the prospect of regionalized wastewater service may fundamentally oppose the idea due to their negative perceptions of the arrangement. A distrust and fear of bigness--in government, corporations, or companies--has been present in American culture from the beginning and continues to thrive in many respects. The term "regionalization" conjures up the negative images associated with mergers, conglomerates, and hostile corporate takeovers. It suggests a monolithic, unresponsive bureaucracy with little sympathy for the needs of the mere customer. These valid concerns, unfortunately, often prove difficult or impossible to dispel.

In other cases, local residents may simply oppose regionalization because it will oblige them to pay more for sewer service or to begin paying something if they have no treatment in place now. To a percentage of those people, the reasoning that they should support a measure to improve water quality and should take responsibility for their own sewage will prove compelling enough. For the remaining percentage, the overriding concern may be the added financial commitment involved in taking responsible corrective action.

Another important factor impeding regionalization in Kentucky is a lack of public awareness of the nature and proper role of package plants. Owners, operators, and customers too often mistakenly rely upon these systems as a permanent wastewater treatment solution rather than a temporary measure until more

reliable public service becomes available. Thus they may counter a regionalization proposal with the argument that they already *have* wastewater service and do not need to share the expense of building or connecting to a bigger facility.

With the existing application requirements for KPDES permits, DOW currently receives insufficient long-range information to guide permit considerations and has little authority to base decisions on such information if it could be acquired. The DOW frequently grants KPDES permits to facilities that appear adequate to serve present needs, but which in the long run prove incapable of handling the demands of unanticipated growth. As a consequence, the citizens of the Commonwealth too often must pay the price of water quality degraded by the effluent of malfunctioning systems, as well as the unnecessarily high economic costs associated with inefficient wastewater service. Furthermore, the absence of local or regional planning of wastewater facilities may condemn the surrounding area to the negative effects of urban and suburban sprawl and may consequently place greater strain on local budgets to provide the multitude of basic services required by these developments.

Conclusion

The DOW has recognized the above difficulties through experience in pursuing regionalization around Kentucky. From this experience and from corresponding with other states to learn of strategies in place to overcome similar obstacles, the DOW has developed numerous recommendations for legislative, regulatory, and agency-level measures to address many of the impediments described above. Those recommendations form the basis for the final chapter of this report.

CHAPTER NOTES

[1] Karen Marshall, *Regional Wastewater Treatment Systems: A National Survey of State Problems and Solutions.* Lexington: Council of State Governments, 1991.

[2] CSG survey report, Appendix 1 pp. 2-3.

[3] Refer to Cynthia Crossley, "U.S. May Sue if Caveland Sewer Agency Breaks Up," *Louisville Courier-Journal*, April 11, 1991 p. B 1, and Crossley, "Caveland Sanitation Gets Reprieve as Move to Disband It is Tabled, " *Louisville Courier-Journal*, April 12, 1991, p. B 1. Construction was eventually resumed on the Park City/Mammoth Cave portion of the project.

[4] Memorandum from Jack A. Wilson, Director of the Division of Water, through William C. Eddins, Commissioner of the Department for Environmental Protection, to Frank Dickerson, Commissioner of the Department of Law, dated August 31, 1990.

Recommendations and Conclusions

Based on the DOW's experience in regulating wastewater systems and attempting to implement regionalization, staff have developed several recommendations for legislative, regulatory, and procedural innovations to facilitate regionalization efforts. These recommendations are the result of numerous discussions in-house and across the state over the last several years, extensive analyses of the strengths and weaknesses of Kentucky's existing legislation and regulations, and surveys of and correspondence with other states to borrow successful regionalization strategies.

It is the DOW's opinion that to be effective, the regionalization concept must be incorporated into Kentucky's official water management planning policy. Appropriate statutory and regulatory modifications should be adopted to support this policy and to give the DOW sufficient authority to implement it, in order to continue and expand the benefits of the regionalization concept wherever feasible.

This chapter outlines the provisions of the basic legislative, regulatory, and procedural innovations that the DOW believes are essential for enhancing water quality in the Commonwealth.

Legislation

In early 1993, the Department for Environmental Protection (DEP), with input from the DOW, developed the following legislative recommendations to bring Kentucky's wastewater policy more closely in line with the regionalization policy of the federal government and surrounding states and to resolve some of the greatest impediments to effective implementation of this policy:

* Expressly state regionalization as a goal for wastewater systems in Kentucky.

* Require local governments to prepare comprehensive wastewater infrastructure plans that assess current conditions and future demands.

* Issue permits to private wastewater treatment plants *only* if they are compatible with regional wastewater treatment plans and require the owners to develop facility plans.

* Require that a public entity serve as a third-party co-permittee to provide backup liability for private systems and require private systems to post bonds or other forms of surety with the co-permittee.

* Give city or county entities the authority to take over a treatment plant in the event of plant noncompliance or failure, or mandate that they be deeded the facility upon construction.

Following are summaries of some of the key legislative provisions endorsed by the DOW. In formulating these proposals, staff have referred to the CSG report *Regional Wastewater Treatment Systems: A National Survey of State Problems and Solutions*[1] to find models of successful legislation enacted in other states.

The texts of draft bills of several of the proposals described below have been appended to this report.

Legislative Item 1: Assurances of Responsibility for Package Plant Operators

Legislation enacted in the State of Nevada addresses the need for the owners of package plants to provide for the long-term operation of their facilities by requiring them to secure the financial involvement of a responsible local government. The legislation also mandates that a non-POTW (Publicly Owned Treatment Works) connect, at the owner's expense, to a POTW as soon as one becomes available.

If implemented in Kentucky, such legislation would forestall many of the problems caused by plant owners who abandon their facilities, go bankrupt, or refuse to relinquish systems that they have allowed to deteriorate into gross noncompliance. The requirement of active local government involvement would ensure that a stable entity could be made liable for plant operation in the event of the owner's disappearance or noncompliance; unlike an individual or private corporation, a public entity cannot simply disappear or dissolve as a means of evading responsibility.

Specifically, this bill would place the following key requirements on all sewage systems that serve residences and are not owned by a POTW:

* No KPDES permit may be granted or renewed for any sewage system whose users are capable of being served by an existing POTW (the availability of service is determined by considering the technical and economic feasibility of connection and the treatment capacity of the receiving plant).

* As a condition of KPDES permit issuance or reissuance, the owner of the sewage system must assume the responsibility and cost of connecting the system to a POTW when one becomes available.

* No KPDES permit may be granted or renewed for any sewage system unless a responsible governmental entity pledges to assume responsiblity for the continued operation and maintenance of the system in the event of the permittee's noncompliance and responsibility for assessing the lands served by the system to pay the necessary operational costs.

* The owner of the system must furnish the responsible governmental entity with a sufficient and acceptable surety (in the form of a bond, certificate of deposit, investment certificate, etc.) to ensure the continued maintenance and operation of the system.

* A lien must be placed on the lands to be served by the system, providing that each lot or parcel will be assessed by the responsible governmental entity for its share of operation and maintenance of the system if the governmental entity assumes operational responsibility. The proceeds may be used for operation and maintenance costs, the replacement of the system if necessary, and the cost of connecting to any POTW that becomes available to serve the users.

For the complete draft of this bill, please refer to Appendix E.

Legislative Item 2: Long-Range Plans for Non-POTWs

The DOW has found through experience that, over time, many package plants are overtaxed beyond their design capabilities because the owners of those systems allow too many connections/add-ons and fail to plan for future growth and the consequent increase in demand for wastewater service. Unable to adequately handle the volume of waste received, these plants predictably discharge effluent that pollutes the receiving waters.

This legislative proposal would require that, before applying to the DOW for a permit to construct or expand a sewage treatment system serving residences and/or other sources of domestic-type sewage, the facility owner(s) must submit to the DOW a long-range wastewater treatment plan to assure that adequate treatment capability will be provided for the projected service area. The facility owner must also submit a statement from any POTW in the sewage system planning area, describing the long-term plans for providing service to customers in the area, and must put up a performance bond.

Specifically, this bill would place the following key requirements on all sewage systems that serve residences and are not owned by a POTW:

* No KPDES permit may be granted or renewed for any sewage system whose users are capable of being served by an existing POTW. (The availability of service is determined by considering the technical and economic feasibility of connection and the treatment capacity of the receiving plant.)

* The owner(s) of the sewage system must submit a statement from any POTW within a regional or facility plan or water quality management plan area in which the sewage system is located describing the POTW's plans for providing service to the area and indicating when it plans to serve the residence to be served by the proposed sewage system. If the POTW does plan to extend its service to the area to be served by the proposed system, the two entities must submit a joint statement outlining how this arrangement will be implemented.

* As a condition of KPDES permit issuance or reissuance, the owner of the sewage system must assume the responsibility and cost of connecting the system to a POTW when access to one becomes available.

* Upon approval of the KPDES permit application, but before the permit is issued, the applicant must file a performance bond payable to the DOW to cover continued operation and maintenance costs in the event of owner default and to pay the connection cost when access to a POTW becomes available.

This legislative proposal would require package plant owners to consider the future of their existing or proposed facilities, and would compel them to recognize that their package plants are ultimately not permanent wastewater solutions. The requirements associated with this planning process may have the added benefit of raising the initial costs of a proposed facility enough to discourage some ill-advised projects from advancing to implementation.

For the complete draft of this bill, please refer to Appendix F.

Legislative Item 3: Wastewater Planning by Local Governments

One of the detrimental effects of the uncontrolled siting of wastewater facilities is a tendency to encourage growth around it. While most citizens would like to see government control urban and suburban sprawl, preserve rural areas, and contain the cost of providing numerous services, unplanned growth typically thwarts these efforts. The proposed legislation would require local and regional governments to plan ahead for wastewater and drinking water service provision and to exercise responsible control over the siting of wastewater facilities.

Specifically, this bill would include, but not be limited to, the following key requirements on all counties and all cities of the first and second class in Kentucky:

* Every county, in conjunction with cities incorporated within the county, or a region composed of more than one county, shall prepare an area-wide wastewater and drinking water management plan. The plan must address the sewage treatment, distribution, and collection and the drinking water treatment and distribution needs of the county. Cities of the first or second class will have the sole responsibility for developing that portion of the plan applicable to its jurisdiction.

* Each county is responsible for implementing the plan, except that any city of the first or second class will be responsible for implementation within its jurisdiction.

* No permit shall be issued by either the Natural Resources and Environmental Protection Cabinet or the Cabinet for Human Resources/County Health Department for sewage or drinking water services within a county that conflicts with a county's wastewater and drinking water management plan.

* The plan shall identify wastewater and drinking water treatment needs of the area over 10- and 20-year periods; identify existing or required agencies or political subdivisions necessary to construct, operate, and maintain all facilities necessary to carry out the plan; establish construction priorities for needed treatment works, schedules for the initiation and completion of all treatment works, and financing strategies; analyze the feasibility of alternative wastewater treatment systems; evaluate the best practicable wastewater treatment and drinking water distribution technology; establish a regulatory program for all point sources of water pollution in the area; consider socio-economic, land use, transportation, geographic, and water resource issues; and the measures necessary, the cost, and the impacts of carrying out the plan.

* Plans may be developed jointly between two or more counties, and a county may delegate responsibility for preparing all or parts of the plan to one or more cities of the first or second class within the county, upon mutual consent.

For the complete draft of this bill, please refer to Appendix G.

Legislative Item 4: Allowing MSDs to Serve Contiguous Counties

Metropolitan sewer districts (MSDs) are authorized by KRS Chapter 76 but are limited to first- and second-class cities and the counties containing such cities. Although the MSD concept could be used in the second-class cities of Ashland (Boyd), Bowling Green (Warren), Frankfort (Franklin), Owensboro, (Daviess), Paducah (McCracken), Radcliff (Hardin), and Richmond (Madison), the state's only existing MSD serves Louisville and Jefferson County.

More than 200 package plants now operate in Jefferson County. The MSD has an active program through which it acquires, operates, and ultimately connects them to its comprehensive system. Local opinion is divided over whether the Louisville/Jefferson County MSD should extend its operation beyond the Jefferson County boundaries to parts of those Jefferson County watersheds extending into the contiguous counties of Bullitt, Oldham, Shelby, and Spencer (the Crestwood area, which straddles the Jefferson-Oldham boundary, is one example of such an area). Efforts are currently underway to create an interlocal agreement with Oldham County to serve some of its residents. However, express legislative authority to extend its boundaries outside Jefferson County could greatly simplify the process of providing service in this case. A statutory change in KRS Chapter 76 specifically allowing MSDs to receive wastewater from contiguous counties and/or from watersheds that extend into contiguous counties would greatly assist the district's efforts toward regionalization.

A bill articulating this legislative proposal has not yet been drafted.

Legislative Item 5: Elimination of Exemptions for Wastewater Operators at Schools

Under KRS 223.160, operators of wastewater facilities for schools are required to have a limited certificate of competency, rather than the full certification required for operators of other wastewater systems. The limited certification documents the ability of an individual to operate a specific treatment facility, as opposed to any facility of the same size class and treatment method.

The experience of the DOW staff, however, has indicated that treatment facilities for schools are just as complicated as other classifications of wastewater facilities. In order to ensure the reliable and sanitary operation of these systems, they should be managed by fully-certified operators with more training than is required for a limited certificate. For this reason, the DOW recommends that KRS Chapter 224 be amended to delete the exemption for wastewater treatment facility operators at schools.

A bill articulating this legislative proposal has not yet been drafted.

Legislative Item 6: Assurance of Adequate On-Site Wastewater Treatment

Effective on-site wastewater treatment methods will not be proscribed in the pursuit of regionalization. However, in some parts of Kentucky, residents do not use any treatment at all before disposing of their domestic waste; instead it is "straight-piped" into the nearest stream or ditch. Failing septic systems are another widespread problem in the state (refer to Appendix A).

State and local health and water officials need the authority to ensure that new residences are equipped with adequate on-site wastewater treatment if they are not connected to an off-site treatment plant. This objective could be implemented with a legislative requirement that electrical hook-ups will be

provided to new sites only upon presentation of a certificate attesting that the site has been provided with adequate wastewater treatment. The requirement would touch virtually all new construction, including many new and relocated mobile homes, and would ensure that site owners could not receive a highly desirable commodity (electricity) until they have taken responsible measures to safely dispose of their own waste. Such a requirement would operate much like current Public Service Commission (PSC) regulations that direct water suppliers to suspend service to customers of municipal wastewater systems or sanitation districts who fail to pay their sewer bills.[2]

Another alternative for ensuring adequate on-site wastewater service is to place the responsibility on the owner or realtor of a dwelling or building lot to certify the existence of a reliable wastewater treatment method to serve the property. This method would eventually cover virtually all lots and would be institutionalized in the transaction process with other information disclosure requirements that already afford protections to those purchasing real estate.

A bill articulating this legislative proposal was proposed in the 1992 and 1994 General Assemblies but both times failed to pass.

Legislative Item 7: Allowing Smaller Service Areas for Urban Services Districts

KRS Chapter 108 provides for the creation of urban services districts. However, each district must contain an area of at least ten square miles. This requirement may prevent many localities from making use of such an organizational option to implement regional wastewater treatment. This minimum size restriction should be decreased, although not so much that it would thwart the objective of regionalization.

A bill articulating this legislative proposal has not yet been drafted.

Administrative Regulations

The DOW possesses the legislative authority to control many aspects of wastewater facility construction and operation. However, the agency needs some regulatory clarification of the particular criteria and mechanisms it may use in exercising its authority to implement regionalization. The objective of a regulatory thrust should be to implement requirements that are fair to all parties *and* stringent enough to promote regionalization by discouraging the use of small, separate wastewater treatment facilities.

Following are summaries of some of the key regulatory options now being evaluated by the DOW.

Regulatory Item 1: Facilities Construction Regulations

The DOW's Facilities Construction Branch recently drafted revisions to the regulations governing the construction of wastewater facilities in the Commonwealth. Staff from the DOW and the NREPC'S Department of Law (DOL) have used this opportunity to incorporate language supportive of wastewater regionalization into the draft construction regulations.

As a condition of new and reissued KPDES permits for package plants in the Commonwealth of Kentucky, the DOW currently stipulates that the facility must connect to a regional system when access to

one becomes available. However, the definition of "available" has not been expressly established and thus is vulnerable to legal challenge. The DOW/DOL staff working on the new facilities construction regulations have sought to clarify this term by including distance and cost criteria for determining the "availability" of a regional wastewater facility for connection: the smaller facility must hook on if it is within one mile of the regional facility, *or* if the cost to connect is less than 150 percent of the cost of the smaller treatment facility.

Specifically, the proposed regulations include the following provisions relating to wastewater regionalization:

* "Regional facilities" are defined to mean facilities designated by a regional, facility, or long-range wastewater treatment plan to provide wastewater collection, transportation; or treatment services for a specific area. The facility must be owned by a city, county, or public body that was created by KRS Chapters 67, 67A, 74, 76, 96, 108, or 220.

* No permit to construct, modify, or expand a wastewater facility will be granted if the facility is capable of being served by an existing regional facility. The smaller facility must hook on if it is within 1 mile of a regional facility with an average daily design capacity larger than 1,000 gallons per day (gpd) or where the cost to connect is less than 150 percent of the cost of the treatment facility.

* No permit will be granted to any facility that would conflict with a regional or facility plan or which is in conflict with a water quality management plan approved by the NREPC or the U.S.EPA. If a regional or facility plan or water quality management plan is being or has been developed, the applicant must provide the NREPC with a statement from the agency developing or implementing the plan that the applicant's wastewater treatment project is compatible with the plan.

* Additional equipment requirements are added to small wastewater facilities serving schools, subdivisions, and small sewage plants.

* DOW may deny an extension to a treatment plant that is subject to excessive infiltration or excessive inflow; not in compliance with its operational permit; or receiving flows or organic loads in excess of 90 percent of the average daily design capacity, unless the DOW has accepted a schedule for submittal of plans and specifications for a plant expansion adequate to handle the anticipated increase.

The above requirements would ensure that the DOW has adequate regulatory authority to compel regionalization in cases where it is feasible. Furthermore, additional requirements placed on smaller facilities will add to their cost and may encourage an examination of cost-effective regionalization alternatives.

The DOW is currently drafting proposed regulations containing these provisions and is preparing to submit them shortly to the Legislative Research Commission (LRC) to begin the formal amendment process.

Regulatory Item 2: Additional Requirements for "Bad Actors"

The poor compliance records of many package plants can be traced to owners who have already earned a bad performance record with one or more other facilities. Some of these "bad actors" evade personal responsibility by creating multiple corporations to serve as the "owners" of these plants for the purposes of acquiring the necessary operational permits. In many cases, the DOW is aware of the identity of such parties, but current mechanisms provide little or no authority to base permit issuance or reissuance decisions on such information.

Stricter regulations should apply to these "bad actors" to compel them to shoulder their responsibilities and provide guarantees against default or gross operational negligence or to authorize DOW to refuse permits to bad actors who can be identified as owners of all or a specified portion of an existing or proposed wastewater facility. Stringent permit criteria should include the ability to generate sufficient revenues for operation and maintenance and financial reserves for major maintenance activities and facility replacement or connection.

Regulatory Item 3: Facility Status Report for Permit Renewal Consideration

Under current regulation, the DOW is not authorized to require any information from a permit renewal applicant concerning the current condition of an existing package plant, e.g., the condition of the facility, necessary maintenance/repairs. Such information would be invaluable to the KPDES Branch in its consideration of whether or not to renew a package plant's discharge permit.

For this reason, the DOW recommends a regulatory change to require that a KPDES permit renewal application be accompanied by a current inspection report on plant and equipment condition, the expected remaining life of the facility, and necessary maintenance. The report should be current to within 30 days prior to the application date and should be prepared and sealed by a registered professional engineer. As appropriate considering the compliance record of the plant, a compliance schedule should be included in the report. DOW should be given the express authority to condition or deny a permit based on the facility report.

A regulation incorporating this recommendation has not been drafted.

Miscellaneous Recommendations

The following recommendations for other measures to further the wastewater regionalization objective involve neither legislative nor regulatory suggestions at this stage.

Funding for Small Wastewater Projects

The Purchase Area Development District (PADD) is exploring the idea of establishing a fund for very small wastewater regionalization projects that normally cannot compete for funding from such existing sources as the Kentucky Infrastructure Authority (KIA), the Farmers Home Administration (FmHA), or the Community Development Block Grant (CDBG) program. Although these projects are usually too small to compete for traditional types of funding, they often could provide very cost-effective, straightforward solutions to chronic local problems. A simple sewer line extension, for example, could eliminate one or

more package plants or a cluster of failing septic systems at a fairly low cost in some areas of the state. The PADD is looking into ways to create a funding pool solely for such small projects or to make them more competitive for existing funding sources.

The PADD has communicated with the DOW and several other parties to determine the level of support for a new program to meet these needs. They are also evaluating other existing programs, such as the KIA funds (including the SRF), as possible vehicles for implementing the proposal without establishing a completely new funding program.

Improved Coordination Between the DOW and the Public Service Commission

While the DOW regulates all wastewater facilities that discharge from a point source into the waters of the Commonwealth, the PSC also exercises regulatory authority over all wastewater facilities deemed to be utilities as defined in KRS Chapter 278.[3] The PSC is authorized under 807 KAR 5:071 to regulate the financial aspect of privately-owned sewer utility systems, which include many package plants. In 807 KAR 5:071 Section 3(1)(a), the owner must provide a depreciation schedule listing separately all major components of the "package" plant, and in Section 5(1) the plant must be operated and maintained to treat the wastewater to the degree required to comply with its KPDES permit limits.

For wastewater utilities over which both the PSC and DOW have jurisdiction, the agencies have developed an understanding to minimize duplication of effort and to allocate regulatory responsibilities (refer to Chapter 4). This cooperation was extended in 1991, when staff from the PSC and the DOW successfully combined their authorities in taking joint legal action against one of Kentucky's worst package plant operators (refer to Chapter 5). Following this achievement, the DOW proposed the development of a permanent working relationship between the DOW and PSC to focus on wastewater operators who violate the Commonwealth's water treatment and water pollution laws and provide rate payers low or no service for their water-related utility fees.[4] Cooperation was proposed specifically in the areas of information exchange, enforcement efforts, and legislative development.

Little formal action has been taken on this proposal to date. However, such coordination between these two agencies would provide an effective tool in the effort to achieve better package plant performance and to promote regionalization in cases where it proves feasible.

Alternatives to Regionalization

Ultimately, the goal of the regionalization initiative is not merely a reduction in the number of wastewater facilities for its own sake, but an improvement in water quality. In some cases, the solution of a wastewater problem will not require the physical regionalization of wastewater services; such an approach may even prove undesirable. For some failing facilities, operator training may provide the most feasible way to improve performance and achieve permit compliance. Under certain geographic and demographic conditions where some form of construction proves necessary, the answer may lie in alternative small-scale, low-technology wastewater systems rather than construction of or connection to a conventional municipal treatment facility.

DOW-Sponsored Training and Technical Assistance for Operators

According to state regulation, package plants treating up to 50,000 gallons per day (gpd) must be operated by individuals with Class I licenses. To earn a Class I certification, operators must have a high school diploma or GED as well as one year of operational experience,[5] and must pass a certification examination with a score of 70 percent or higher. Certified Class I operators must earn 12 hours of continuing education credits to renew their license by June 30 of odd-numbered years.

The DOW's Operator Certification Section is responsible for training and certifying all wastewater system operators in the Commonwealth. Training is conducted by four staff members and is accomplished through classroom instruction and the COMPTrain program.[6] (For more information on the latter program, refer to Chapter 4 of this report). In 1993, approximately 1,470 wastewater operators, or roughly half of the active operator community, attended operator training sessions. This program reaches a significant portion of the operator community with low-cost, quality instruction.

Currently, however, a lack of administrative staff will hamper the Operator Certification Section's ability to offer a comparable level of operator training in 1994. Without adequate financial support, this training service will cease to exist and a large part of the operator community will go unserved. A lack of access to organized, affordable training may prevent some certified operators from renewing their licenses, thus placing their KPDES-permitted facilities in violation of operator certification requirements.

The training functions of the Operator Certification Section should be supported and used to the fullest extent possible in the effort to improve wastewater facility performance by training the operators who run the facilities.

Training and Technical Assistance for Operators: The Circuit Rider Concept

In light of the constraints imposed on the training and assistance activities of the DOW's Operator Certification Section (see above recommendation), and recognizing that the DOW's enforcement role can sometimes hinder the development of rapport between the regulator and the regulated, the DOW used a portion of its Section 205(j)/604(b) monies[7] to fund a U.S. Army Corps of Engineers feasibility study of the possible employment of a "circuit rider" to assist package plant operators.[8]

A circuit rider would be a certified wastewater treatment plant operator/consultant who would provide individualized on-site training and assistance to package plant operators. The resulting improvements in operation and maintenance would raise the quality of the plant's effluent and reduce unnecessary operation and maintenance costs in many cases. A circuit rider already provides wastewater service in the Western Kentucky area through the Kentucky Rural Water Association (KRWA), but funding has not been available for the KRWA to extend this service to the rest of the state.

The Corps study analyzed the feasibility of using such a person to serve a "circuit" of all privatelyowned package plants within the five-county Gateway region of Kentucky. The study found that the projected savings in operation and maintenance, sludge disposal, and consulting costs would justify a part-time circuit rider at $30,000 per year to serve 25-30 plants per month. A full-time circuit rider at $50,000 per year could serve about 100 Eastern Kentucky plants per month and would reduce the individual cost per plant.

As part of the feasibility study, the Corps of Engineers drafted a Request for Proposals (RFP) from interested, qualified individuals or engineering firms to function as a circuit rider for package plants in the Gateway Area Development District. The RFP was intended to be issued by the DOW. However, due to recent budget cuts and the uncertainty of future Section 604(b) funding, the DOW is unable to make the multi-year commitment of funding necessary to make the circuit rider program a success.

The DOW accordingly recommends the dedication of funding to support the development of a circuit rider program for package plants in Eastern Kentucky.

Alternative Small-Scale Wastewater Technologies

In previous decades, government wastewater policies and funding programs endorsed fairly high-technology, large-scale wastewater systems as the only acceptable off-site treatment method. Such costly systems were hopelessly out of reach for many smaller communities and placed substantial financial burdens on those communities that endeavored to build them. Although these "conventional" wastewater systems still possess the advantage and produce economies of scale with larger customer bases such as municipalities, research has advanced several alternative collection and treatment systems, including constructed wetlands, small-diameter pressure sewers, "cluster" systems, and composting and incinerating toilets.

Constructed wetlands are human-engineered wetlands created to harness the natural ability of these ecosystems to break down the pollutants found in domestic sewage. As wastewater moves slowly through the wetland, many solids settle to the bottom and add nutrients to the sediment. Marsh plants established in the wetlands (e.g., cattails, bulrushes, iris, and arrowhead) absorb excess nutrients and transfer oxygen to their roots, providing a growth medium for bacteria that help break down other organic wastes.[9] After passing through two or more cells of the wetland, the effluent either seeps into the soil below or is released into a drainfield similar to those used with conventional septic tanks.[10] These systems may prove a viable wastewater treatment alternative where soils are rocky and the water table is shallow or where space for an on-site system is limited.

Research on the effectiveness of constructed wetlands in Kentucky is well underway. The state health department has designed and supervised the installation of more than 120 experimental on-site residential constructed wetlands in the last few years, relying on design guidelines established by the Tennessee Valley Authority (TVA). The system costs range from $1,500 to $3,500 per site.[11] At this time, the performance of these experimental wetlands under Kentucky conditions is still being evaluated, although some initial data indicate possible problems with ammonia and fecal coliform parameters.[12] Health department officials have begun permitting such experimental systems in several Kentucky counties, including Rowan, Morgan, and Bath counties in the Gateway region, where high water tables, impermeable soils, and sloping terrain make it difficult to site traditional septic drainfields.[13]

Cluster systems can achieve regionalization on a small scale to eliminate the need for on-site systems. Even where land is unsuitable for an on-site system, it is often possible to find a usable site not too far away. A cluster system typically uses **small-diameter pressure sewers** to collect wastewater and transport it a short distance to a small treatment facility on the chosen site. These sewers are smaller in size and less costly to install and maintain than conventional sewers. Made of sturdy plastic, they can be placed at shallower depths and routed around trees and buildings to minimize disruption of the landscape. These low-cost, flexible pipes can be used to convey septic tank effluent from several homes to a larger version of an on-site system such as a soil absorption system, intermittent sand filter, constructed wetland,

or lagoon system.[14] The technology for small-diameter pressure sewers is already in use in many water distribution systems, and numerous small wastewater systems around the country have adapted it to meet their wastewater collection needs.

Cluster systems generally can serve two or more homes, but less than an entire community. They may be suited for subdivisions of a few dozen homes, and they can offer a good, low-cost solution for subdivisions that are far from central facilities and in which the houses are too close together to allow on-site systems on each lot.[15] However, a reliable arrangement for operation and maintenance must be made, for cluster systems are no more maintenance free than a package system.

Composting and incinerating toilets can be employed to deal with the human waste component of domestic sewage in some circumstances. Composting toilets contain the waste instead of discharging it to an external collection or treatment system and use accelerated natural decomposition processes to turn the waste into a useful product: compost. Incinerating toilets reduce the toilet waste stream to ash for subsequent disposal. With the use of either of these technologies, a separate wastewater treatment method is used for the remaining domestic wastewater stream, which typically comes from sinks and showers.

The above technologies, singly or in various combinations, may be able to solve some of the wastewater problems currently addressed with package plants or even straight pipes. Other treatment technologies or variants of existing options may also be needed for application in some of the most demanding settings, particularly in Eastern Kentucky's mountainous, rolling terrain and the fragile karst areas throughout the Commonwealth, where ingenuity is required to overcome the difficulties posed by shortage of level ground and the presence of thin, porous soils.

A variety of resources on the latest alternative wastewater treatment methods is available from several agencies. The U.S. EPA has published a host of informational materials describing alternative wastewater systems and ways to finance and construct them. The most well-known secondary source for information published by the EPA and others is the Small Flows Clearinghouse at West Virginia University in Morgantown, which publishes a newsletter and offers a full complement of literature on such technologies. This organization can prove a valuable resource for communities seeking affordable small-scale wastewater solutions.

Conclusion

With the implementation of the legislation, regulations, and other innovations proposed in this chapter, the DOW seeks to bring Kentucky's wastewater policy more closely in line with that of the federal government and to resolve some of the difficulties currently standing in the way of effectively implementing the regionalization policy.

Regionalization will not happen everywhere immediately, even with the help of the measures recommended in this report. In some areas, regionalization may not offer a feasible solution to wastewater problems due to geographic and/or cost constraints. In other areas, regionalization may not prove necessary in the immediate future if package plant performance can be improved by more effective operator training and technical assistance, or if failing on-site systems can be replaced by more reliable systems -- perhaps constructed wetlands.

However, in many cases regionalization presents the most logical and responsible answer to an area's wastewater treatment problems, but organizational problems, cost, or local politics stand in the way

of implementing a solution that would benefit local residents and other taxpayers in the Commonwealth. Often the solution demanded by regionalization will prove unpopular to the locally affected parties. It may require an investment from those who until now have avoided taking responsibility for the sewage they generate; it may raise protests from package plant owners. It may simply run against old feuds between municipalities or between rural and urban factions. Ultimately, the Commonwealth of Kentucky must exercise its broader authority in these situations to compel regionalization in an equitable fashion if it is to protect citizens from the degraded water quality and increased health risks associated with poor sewage treatment. It is these difficult situations that the regionalization recommendations in this report are intended to address.

CHAPTER NOTES

[1] Karen Marshall, Center for Environment, Lexington: Council of State Governments, 1991. For more information on the study, which was funded by federal 205(j) water quality management planning funds, refer to Chapter 6.

[2] Refer to KRS 96.934(2) and KRS 220.510(1).

[3] According to KRS 278.010 (3) (f), "'Utility' means any person except a city, who owns, controls, or operates or manages any facility used or to be used for or in connection with:...the treatment of sewage for the public, for compensation, if the facility is a subdivision treatment facility plant, located in a county containing a city of the first class or a sewage treatment facility located in any other county, and is not subject to regulation by a metropolitan sewer district...."

[4] Letter from DOW Director Jack A. Wilson to George Edward Overby, Jr., Chairman, Kentucky Public Service Commission, August 28, 1992.

[5] As specified in 401 KAR 5:010.

[6] The Operator Certification Section also retains outside training entities as necessary and disseminates information about other instructional opportunities.

[7] For a description of this federal funding program, refer to Chapter 6.

[8] *Market Feasibility Study Report for Kentucky Division of Water Circuit Rider Plan*, Louisville District of the U.S. Army Corps of Engineers, 1993.

[9] Nancy Gover, "Constructed Wetlands Operate Despite Winter's Chill," *Small Flows* vol. 7, no. 1, January 1993, p.1.

[10] Franklin R. Schutz, "TVA's New Design Guidelines for Constructed Wetlands Alter Size, Shape, Design Process," *Small Flows*, vol.6, no.1, January 1992, p.2.

[11] "More States Using Constructed Wetlands for Onsite Wastewater Treatment," *Small Flows* vol. 6, no. 1, January 1992, p.3.

[12] Environmental Quality Commission, *State of Kentucky's Environment* report, 1992, p. 62.

[13] "Constructed Wetlands Offer Alternative to Septic Systems," The Mt. Sterling *Advocate*, Thursday, September 2, 1993, p. 5A.

[14] *It's Your Choice: A Guidebook for Local Officials on Small Community Wastewater Management Options*, U.S. Environmental Protection Agency, Office of Municipal Pollution Control, Municipal Facilities Division, Washington, D.C., 1987, p. 22.

[15] *Ibid.*